

NETHOD AND SYSTEM FOR BROADCASTING TYPE DISTRIBUTION FILTERING, AND STORAGE MEDIUM STORING BROADCASTING TYPE DISTRIBUTION FILTERING PROGRAM

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Abstract

PROBLEM TO BE SOLVED: To reduce the load of data distribution at a network and a terminal by storing filtering conditions inputted from a user in advance and receiving data matching with the filtering conditions when a distribution announce message from a server matches with the filtering conditions.

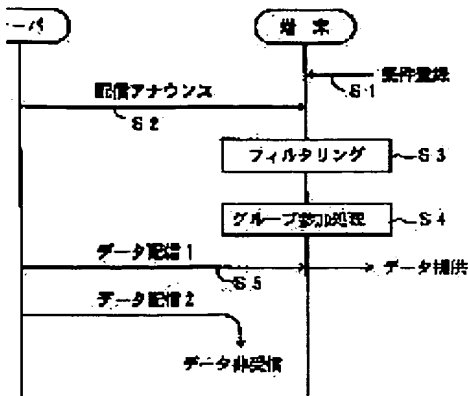
SOLUTION: In the data distribution system for distributing data from a server through the network to a lot of terminals, the filtering conditions inputted from a user in advance are registered on the terminal side (S1) and the distribution announce message containing the summary information of data distribution or the like is received from the server (S2). Filtering is performed by discriminating the matching of the distribution announce message with the filtering conditions (S3). When the terminal matches, it participates in a distribution group (S4) and the data matching with the filtering conditions are received (S5).

JP11110401 METHOD AND SYSTEM FOR BROADCASTING TYPE DISTRIBUTION FILTERING, AND STORAGE MEDIUM STORING BROADCASTING TYPE DISTRIBUTION FILTERING PROGRAM

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PROBLEM TO BE SOLVED: To reduce the load of data distribution at a network and a terminal by storing filtering conditions inputted from a user in advance and receiving data matching with the filtering conditions when a distribution announce message from a server matches with the filtering conditions.

SOLUTION: In the data distribution system for distributing data from a server through the network to a lot of terminals, the filtering conditions inputted from a user in advance are registered on the terminal side (S1) and the distribution announce message containing the summary information of data distribution or the like is received from the server (S2). Filtering is performed by discriminating the matching of the distribution announce message with the filtering conditions (S3). When the terminal matches, it participates in a distribution group (S4) and the data matching with the filtering conditions are received (S5).



DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the storage which stored the broadcast mold distribution filtering approach, the system, and the broadcast mold distribution filtering program, and when performing data distribution to many users, the broadcast mold distribution filtering approach, the system, and the broadcast mold distribution filtering program which offers the data according to each user's hope are related to the storage stored in the data distribution service which used communication networks, such as news distribution and electronic publishing, especially.

[0002]

[Description of the Prior Art] Drawing 10 shows the configuration of the whole data distribution system, and drawing 11 shows the conventional distribution filtering approach. The data distribution system shown in drawing 10 is constituted by a server 101, a network 102, and many terminals 103. A server 101 distributes data, such as news and a digital magazine, to many terminals 103 through a network 102. Especially data are distributed by the multiple addresses, such as a multicast.

[0003] In the data distribution system shown in drawing 10, as shown in drawing 11, when [from a server 101 to a terminal 1031, 1032, and --] the multiple address performs data distribution (data distribution 1 and 2), by the conventional method, after receiving data by the terminal 1031, 1032, and --, collating with the conditions of a prior input performs filtering processing of received data, unnecessary received data are discarded, and there is a method of leaving only required data.

[0004]

[Problem(s) to be Solved by the Invention] However, by the above-mentioned conventional approach, since FITA ring processing is performed once a terminal receives data, unnecessary data are also received and there is a problem that the load of the unnecessary reception in a terminal is large, greatly [network traffic]. This invention was made in view of the above-mentioned point, before data reception with a terminal, it judges data, and it aims at offering the storage which stored the broadcast mold distribution filtering approach which can mitigate the load of data distribution with a network and a terminal, the system, and the broadcast mold distribution filtering program.

[0005]

[Means for Solving the Problem] Drawing 1 is drawing for explaining the principle of this invention. In the broadcast mold distribution filtering approach in the data distribution system by which this invention carries out data distribution to many terminals through a network from a server The filtering conditions inputted into the terminal side by the user in advance are registered (step 1). The distribution announcement message which includes the outline information on distribution data etc. from a server is received (step 2). When it filters by judging the compatibility of a distribution announcement message and filtering conditions (step 3) and the terminal conforms Participation to a distribution group is performed (step 4), and the data which conform to filtering conditions are received (step 5).

[0006] Moreover, in a terminal, if filtering conditions are inputted, this invention If these filtering conditions are stored in the storage means and a distribution announcement message is received from a

server When this message is stored in the storage means and filtering conditions match a distribution announcement message The port number in the end of a local is set up, a receiving interface is opened by the multicast address specified by the distribution announcement message, the distribution data sent from a server are received, and in not matching, it discards this distribution announcement message.

[0007] Moreover, this invention stores the distribution data for distributing to a terminal in the server side, transmits a distribution announcement message to a terminal (step 2), and if the distribution time amount set up beforehand comes, it will distribute distribution data to a terminal from a data accumulation means (step 5).

[0008] Moreover, a distribution announcement message has at least broadcast information including media information, a multicast address, the communication link information containing the port number used with an accepting station, the broadcast start time of data distribution, end time, and periodic information, a keyword train about distribution data, and the outline information containing abstract. Moreover, let distribution data be a multicast packet containing a multicast address, a server address, and data.

[0009] Moreover, in a terminal, when filtering conditions suit a distribution announcement message and start time comes according to the predetermined periodic information on the broadcast information on a distribution announcement message, the receiving interface of a port is opened, and when end time comes, a receiving interface is closed.

[0010] Drawing 2 is the principle block diagram of this invention. This invention is a broadcast mold distribution filtering system in the data distribution system which carries out data distribution to many terminals 20 through a network from a server 10. A terminal 20 A filtering condition are recording means 21 to accumulate the filtering conditions inputted by the user in advance, An announcement message receiving means 22 to receive the distribution announcement message which includes the outline information on distribution data etc. from a server 10, In a compatibility judging means 23 to judge the compatibility of a distribution announcement message and filtering conditions, and the compatibility judging means 23, when it conforms with filtering conditions It has a participating means 24 to perform participation to a distribution group, and a data receiving means 25 to receive distribution data only when filtering conditions are suited.

[0011] Moreover, the above-mentioned server 10 has a distribution announcement transmitting means to transmit a distribution announcement message to a terminal, a data accumulation means to store the distribution data for distributing to a terminal, and the distribution management tool that will distribute distribution data from a data accumulation means if the distribution time amount set up beforehand comes.

[0012] The above-mentioned distribution announcement message has at least broadcast information including media information, a multicast address, the communication link information containing the port number used with an accepting station, the broadcast start time of data distribution, end time, and periodic information, a keyword train about distribution data, and the outline information containing abstract. Moreover, let the above-mentioned distribution data be a multicast packet containing a multicast address, a server address, and data.

[0013] This invention is the storage which stored the broadcast mold distribution filtering program in the data distribution system which carries out data distribution to many terminals through a network from a server. The filtering condition input-control process of demanding the input of filtering conditions from a user, The announcement message-receiving-control process which controls reception of the distribution announcement message which includes the outline information on distribution data etc. from a server, In the compatibility judging process of judging compatibility with the filtering conditions inputted into a distribution announcement message and beforehand by the user, and a compatibility judging process When filtering conditions and the contents of the distribution announcement message conform, it has the participatory process which performs participation to a distribution group, and the data reception-control process controlled to receive only the data which suited filtering conditions.

[0014] Moreover, this invention is the storage which stored the broadcast mold distribution filtering program in the data distribution system which carries out data distribution to many terminals through a network from a server, and has the distribution announcement transmission-control process which controls transmission of a distribution announcement message to a terminal, and the distribution supervisory control process of controlling multiple address distribution of distribution data if the distribution time amount set up beforehand comes.

[0015] As mentioned above, in this invention, a server transmits a distribution announcement message including the outline of distribution data etc. to a terminal. At a terminal, collating processing with the filtering conditions inputted in advance and the information included in this distribution announcement message is performed, the propriety of the participation to the multicast group specified by the distribution announcement is judged, and only when suited, it participates in a distribution group (multicast group). Data are distributed only to the terminal which has participated in the multicast group. For this reason, it is possible to receive at a terminal only the data which suit the conditions specified by

a user, and the data which a user does not wish to have are not received by the terminal.

[0016]

[Embodiment of the Invention] This invention is applied to the system shown in above-mentioned drawing 10. Drawing 3 is drawing for explaining the principle of the multicast packet reception which this invention uses. The multicast packet transmitted from the server 101 is reproduced in a network 102, and is received by the terminal 103 belonging to the group specified in the address included in the multicast packet concerned. At a terminal 103, the address is specified and a participating demand (Join) is carried out to the communications control section with the function of multicast reception (**). In the communications control section, the specified address is set up and a receiving interface is opened. Two or more addresses can be set as the same interface.

[0017] For example, a certain terminal 1031 Suppose that it set and the receiving interface was opened in Address a (**). When the multicast packet of Address a enters from a network 102, (**) and this multicast packet are received. It is not received by the receiving interface concerned even if the multi-packet of Address b is flowing the network 102 (**).

[0018] When a multicast address is set up, the multicast packet concerned is distributed to the network where the terminal was connected by multicast roux TIGU. The multicast packet of the multicast address which is not set to the terminal of a gap linked to a network, either is not delivered by the terminal concerned. These details are -. "Deering, S.E., Multicast Routing in Internetworks and Extended LANs, ACM Transactions on Computer Systems, No.8, and 1990";

- "Deering, S.E., Host Extensions for IP Multicasting, IETF RFC 1112 and 1989";

- Please refer to "Kumar, V, Mbone Interactive Multimedia on the Internet, New RidersPublishing, Indianapolis, Indiana, and 1996.Chapter 1."; etc.

[0019] First, the configuration of the server of this invention is explained. Drawing 4 shows the configuration of the server of this invention. A server 500 consists of the communications control section 501, the distribution Management Department 502, and the data accumulation section 503. The data accumulation section 503 stores the data distributed to a distribution group. If the distribution Management Department 502 becomes the delivery time set up for every data, it will hand over the data of the data accumulation section 503 in the communications control section 501. The communications control section 501 transmits the data concerned to a network by the multicast.

[0020] The configuration of the multicast packet distributed at this time is shown in drawing 5. Division storing is carried out and the data distributed from a server 500 are distributed to 1 or the data division 803 of two or more multicast packets 800. A multicast packet includes a multicast address 801 and the address 802 of a server in others. There are contents, such as news and a digital magazine, in the data distributed from a server 500. The multiple address of the data is carried out to each terminal by the multicast through a network. There are some which used RMTP as a tool which performs such a multicast. As this bibliography, it is -. There are "Shiroshita, T., et all, Performance evaluation of reliablemulticast transport protocol for large-scale delivery, Proc.IFIP FifthIntl.Workshop on Protocols for High-Speed Networks (PFHSN'96), and Oct.1996."

[0021] Moreover, in a server 500, a distribution announcement message as shown in drawing 6 is distributed as data. Broadcast information 903 which becomes the media information 901, such as media classification, a multicast address, the communication link information 902 that consists of a port number used with an accepting station, the broadcast start time of distribution of data, end time, every day, or a week from periodic information, such as 1 etc. time, a keyword train about distribution data, and outline information 904 which consists of abstract are consisted of by the distribution announcement message 900.

[0022] The distribution announcement message 900 is constituted for every data distribution. When announcing distribution of two or more data by 1 time of the announcement message, the configuration with which two or more configurations of the distribution announcement message 900 were combined with the serial is used. The above is one example of a distribution announcement message, and allows other variations.

[0023] As a tool which multicasts the distribution announcement message 900, there is "Session Directory (SD)", for example. As bibliography about this tool, it is -. "Kumar, V, Mbone Interactive Multimedia on the Internet, New RidersPublishing, INdianapolis, Indiana, 1996.Chapter 4, and pp.62-65"; - "Handley, M.and Jacobson, V., Internet-draft : SDP : SessionDescription Protocol and March 1997"; - There is "Handley, M., SAP-Session Announcement Protocol, Internet-draft, November 1996"; etc.

[0024] Next, the configuration of the terminal of this invention is explained. Drawing 7 shows the configuration of the terminal of this invention. The terminal 600 shown in this drawing consists of the communications control section 601, the condition input section 602, the filtering section 603, the distribution Management Department 604, and the data accumulation section 605. The communications control section 601 has the reception function of the multicast packet explained previously. The multicast packet distributed from the communications control section 501 of a server 500 is received in the communications control section 601 of a terminal 600 through a network 102. Between a server 500 and

the communications control section of a terminal 600, you may have a unicast packet transceiver function for packet resending, resending management, etc.

[0025] As for the condition input section 602, media information and outline information are inputted by the user as filtering conditions. Here, media information is the information about a user's ready-for-receiving ability data, and there are media classification, ready-for-receiving ability data size, etc. Outline information is the information about the data with which a user wishes to receive, and there are a keyword, an ID code, abstract, etc.

[0026] The filtering section 603 performs the adaptation judging of a distribution announcement message and filtering conditions. Based on the judgment result of the filtering section 603, if the distribution Management Department 604 becomes the assignment time amount of the broadcast information 903, it will perform a setup of a multicast address and a port number to the communications control section 601. A multicast address is set as the receiving interface of the communications control section 601, and a port number is information required to be set as the internal interface of the communications control section 601, and identify a communications protocol etc. by the Internet communication link.

[0027] Drawing 8 shows the configuration of the filtering section of the terminal of this invention. The filtering section 603 consists of condition memory 701, contents memory 702 of an announcement, and the matching processing section 703. The filtering conditions inputted from the condition input section 602 are stored in the condition memory 701. Each information on a distribution announcement message is stored in the contents memory 702 of an announcement. Compatibility judging processing of the conditions of such two memory and information is performed in the matching processing section 703. suiting -- a case -- communication link information (a multicast address, port number) and broadcast information (broadcast start time, end time, periodic information) -- the distribution Management Department 604 -- transmitting -- having .

[0028]

[Example] Hereafter, the example of this invention is explained with a drawing. Drawing 9 is the flow chart of the message distribution processing in the terminal of one example of this invention.

Step 101 Processing will be ended if termination assignment is done by the user.

Step 102 Filtering conditions are inputted into the condition input section 602 from a user.

[0029] Step 103 The conditions inputted at step 102 are set as the condition memory 701 of the filtering section 603.

Step 104 The communications control section 601 receives the distribution announcement message 900 from a server 500. The distribution announcement message 900 concerned is also delivered by the multicast packet 800. In the group of the multicast address in this case, a terminal 600 always participates, in the communications control section 601, sets up the multicast address concerned and opens the receiving interface.

[0030] Step 105 The information included in the distribution announcement message which received is stored in the contents memory 702 of an announcement.

Step 106 The filtering conditions of the condition memory 701 and compatibility of the information stored in the contents memory 702 of an announcement are judged. About the judgment of compatibility, it mentions later.

[0031] Step 107 When conditions are matched at step 106, the group of communication link information (a multicast address, port number) and broadcast information (broadcast start time, end time, periodic information) is transmitted to the distribution Management Department 604. At the distribution Management Department 604, two or more groups of such information are stored.

Step 108 If the broadcast start time of the broadcast information stored in the distribution Management Department 604 comes, according to corresponding communication link information, the port number of the communications control section 601 is set up, and the receiving interface of the communications control section 601 is opened by the appointed multicast address.

[0032] Step 109 The data distributed from the server 500 are received by the communications control section 601.

Step 110 At the distribution Management Department 604, if it becomes the end time of broadcast information, the port opened at step 108 is closed, and a setup of the multicast address set as the receiving interface is canceled.

[0033] Step 111 If the distribution appointed time of day comes, it will shift to the data reception of step 108 again.

Step 112 There is a user's interruption here, and if it is termination assignment at step 101, it will end. If it becomes by termination assignment, it will shift to step 102.

Step 113 When there is nothing that matched conditions by matching processing of step 106, the distribution announcement message concerned is discarded.

[0034] Step 114 Here, there is a user's interruption, if it is termination assignment at step 101, processing will be ended, and if it becomes by termination, it will shift to step 102. In addition, when there is no interruption from a user, it shifts to step 104 here.

The example of the compatibility judging in the above-mentioned step 106 is shown below. the logical operator used for below -- **: and **: -- or -- It carries out to less than <=.

[0035]

[Table 1]

(A) メディア情報による判定

フィルタリング 条件	配信アナウンスメッセージ	判定
a. メディア種別 : テキスト画像(JPEG)	メディア種別 動画(MPEG2)	不適合
b. 受信可能データサイズ ≤ 20 Mbyte	配信データサイズ 10 Mbyte	適合
総合判定条件 : a ∧ b		不適合

[0036]

[Table 2]

[0037] the above -- setting -- comprehensive criteria of (A) and the whole (B) (A) \wedge (B) = (a \wedge b) \wedge (c \wedge d \wedge e) Suppose that it is adaptation. Since the media classification (animation) of a distribution announcement message is not included in a. possible "media classification (a text or image)" on filtering conditions, the judgment using the media information on the above (A) serves as "nonconformance" about "a. media classification."

[0038] b. the "ready-for-receiving ability data size" of filtering conditions is 20 M bytes or less, and since this is filled distribution data size 10M byte, about "b. ready-for-receiving ability data size", it is "adaptation." Since the comprehensive criteria of (A) are "a. and b.", the comprehensive judgment of (A) serves as "nonconformance."

[0039] Since the keyword of a distribution announcement message is contained in the "keyword" of filtering conditions, the judgment using the outline information on the above (B) is "adaptation" about a "keyword." Since the ID code of a distribution announcement message is not contained in the "ID code" of filtering conditions, about an "ID code", it is "nonconformance."

[0040] Since the "abstract assignment words protocol and NTT" of filtering conditions is included in the abstract of a distribution announcement message, about "abstract", it is "adaptation." Since the comprehensive criteria of (B) are c. or d., and e., the comprehensive judgment of (B) is "adaptation."

[0041] Finally (A) is ["nonconformance" and (B of the judgment of (A) and the whole (B))] "adaptation." Here, since the whole comprehensive criteria are "(A) and (B)", the comprehensive judgment of the final whole serves as "nonconformance." The above-mentioned actuation is an example of the flow of the message distribution processing in a terminal, and it is also possible to carry out other processing flows.

[0042] As mentioned above, according to this example, a user wishes to have a terminal, or only when the conditions of receivable data are matched, it participates in a multicast group, becomes possible [receiving data by the multicast packet], and can eliminate reception of the unnecessary data which a user does not wish to have. Since an unnecessary packet does not go into the network of the terminal concerned when not participating in a multicast group (Join), a network load is also mitigable.

[0043] In addition, it is possible to carry out general-purpose by building as a program the message distribution processing in the terminal shown in drawing 9 , and storing in portable storages, such as a disk unit of a terminal unit, a floppy disk, and CD-ROM. In addition, modification and application are variously possible for this invention within a patent claim, without being limited to the above-mentioned example.

[0044]

[Effect of the Invention] As mentioned above, according to this invention, the data distribution in alignment with each user's hope is efficiently realizable, receiving the effectiveness of the distribution effectiveness of multiple address distribution. That is, for the network which a terminal connects, a traffic load is mitigable, and for a terminal, reception of unnecessary data can be reduced and it is efficient.

CLAIMS

[Claim(s)]

[Claim 1] In the broadcast mold distribution filtering approach in the data distribution system which carries out data distribution to many terminals through a network from a server The filtering conditions inputted into the terminal side by the user in advance are accumulated. The distribution announcement message which includes the outline information on distribution data etc. from said server is received. The broadcast mold distribution filtering approach characterized by receiving the data which perform participation to a distribution group and conform to said filtering conditions when the compatibility of said distribution announcement message and filtering conditions is judged and the terminal conforms.

[Claim 2] If these filtering conditions are stored in the storage means in said terminal if filtering conditions are inputted, and a distribution announcement message is received from said server When this message is stored in the storage means and said filtering conditions match said distribution announcement message Set up the port number in the end of a local, and a receiving interface is opened by the multicast address specified by this distribution announcement message. The broadcast mold distribution filtering approach according to claim 1 which receives the distribution data sent from said server, and discards this distribution announcement message in not matching.

[Claim 3] Claim 1 which will distribute said distribution data to said terminal from said data accumulation means if the distribution time amount which stores the distribution data for distributing to said terminal in said server side, transmitted the distribution announcement message to said terminal, and was set up beforehand comes, and the broadcast mold filtering approach given in four.

[Claim 4] Said distribution announcement message is broadcast information including media information, a multicast address, the communication link information containing the port number used with an accepting station, the broadcast start time of data distribution, end time, and periodic information, a keyword train about distribution data, and the broadcast mold distribution filtering approach according to claim 1 to 3 of having the outline information containing abstract, at least.

[Claim 5] Said distribution data are the broadcast mold filtering approach according to claim 1 to 3 made into the multicast packet containing a multicast address, a server address, and data.

[Claim 6] Claim 2 which closes said receiving interface when said receiving interface of said port is opened when said said filtering conditions suit said distribution announcement message and said start time comes in said terminal according to said predetermined periodic information on said broadcast information on said distribution announcement message, and said end time comes, and the broadcast mold distribution filtering approach given in four.

[Claim 7] It is a broadcast mold distribution filtering system in the data distribution system which carries out data distribution to many terminals through a network from a server. Said terminal A filtering condition are recording means to accumulate the filtering conditions inputted by the user in advance, An announcement message receiving means to receive the distribution announcement message which includes the outline information on distribution data etc. from said server, In a compatibility judging means to judge the compatibility of said distribution announcement message and said filtering conditions, and said compatibility judging means The broadcast mold distribution filtering system characterized by having a participating means to perform participation to a distribution group, and a data receiving means to receive the data which suited said filtering conditions when it conforms with said filtering conditions.

[Claim 8] Said server is a broadcast mold filtering system according to claim 7 which has a distribution announcement transmitting means to transmit a distribution announcement message to said terminal, a data accumulation means to store the distribution data for distributing to said terminal, and the distribution management tool that will distribute said distribution data from said data accumulation means if the distribution time amount set up beforehand comes.

[Claim 9] Said distribution announcement message is claim 7 which has at least broadcast information including media information, a multicast address, the communication link information containing the port number used with an accepting station, the broadcast start time of data distribution, end time, and

periodic information, a keyword train about distribution data, and the outline information containing abstract, or a broadcast mold distribution filtering system given in eight.

[Claim 10] Said distribution data are claim 7 made into the multicast packet containing a multicast address, a server address, and data, or a broadcast mold filtering system given in eight.

[Claim 11] It is the storage which stored the broadcast mold distribution filtering program in the data distribution system which carries out data distribution to many terminals through a network from a server. The filtering condition input-control process of demanding the input of filtering conditions from a user, The announcement message-receiving-control process which controls reception of the distribution announcement message which includes the outline information on distribution data etc. from said server, In the compatibility judging process of judging compatibility with said filtering conditions inputted into beforehand [said / distribution announcement message and beforehand] by the user, and said compatibility judging process When said filtering conditions and the contents of said distribution announcement message conform The storage which stored the broadcast mold distribution filtering program characterized by having the participatory process which performs participation to a distribution group, and the data reception-control process controlled to receive the data which suited said filtering conditions.

[Claim 12] The storage stored the broadcast mold distribution filtering program carry out having the distribution announcement transmission-control process which is a storage and controls transmission of a distribution announcement message to said terminal of having stored the broadcast mold distribution filtering program in the data distribution system which carries out data distribution to many terminals through a network from a server, and the distribution supervisory control process of controlling multiple address distribution of distribution data if the distribution time amount set up beforehand comes as the description.